

# **GUIDELINES FOR COMPETENCY BASED POSTGRADUATE TRAINING PROGRAMME FOR MCh IN HAND SURGERY**

## **PREAMBLE**

Hand is the most susceptible part of the human body to injury and manifests abnormalities as a part of systemic disease. Hand can be afflicted with disease, deformity / disability due to birth defects, accidents, inflammation, infection, tumors and neuromuscular diseases. These diseases constitute about 30 percent of orthopaedic indoor and outdoor attendance. Correct and adequate management of hand problems by trained, competent and experienced professionals is required.

## ***SUBJECT SPECIFIC OBJECTIVES***

- **Theoretical Knowledge**

The post graduate student should be able to acquire knowledge required for management of diseases and injuries of hand.

- **Practical and Clinical Skills**

The post graduate student should be able to manage and follow-up patients undergoing hand surgery.

- **Teaching skills**

The post graduate student should be able to acquire needed teaching skills in relevant aspects of hand surgery and impart the same to junior colleagues, nursing and para-medical staff.

- **Attitudes with Communication Skills**

The student should be able to communicate effectively with patients, colleagues and the community about various aspects of hand surgery as well as counsel patients and relatives about various decisions taken during management.

## ***SUBJECT SPECIFIC COMPETENCIES***

**By the end of the course, the student should have acquired competencies which come under knowledge (cognitive domain), professionalism (affective domain) and skills (psychomotor domain) as per details given below:**

## **A. COGNITIVE DOMAIN (theoretical knowledge):**

The post graduate student should acquire knowledge in the areas of hand and upper extremity diseases, by the end of the training programme:

- Elicit an appropriate history from a patient / his relative relevant to disorders of hand wrist and upper extremity including injuries.
- Describe the structure and function of the upper extremity and hand
- Describe the microbiological basis of infections of the hand
- Describe the pathological basis for diseases with particular focus on traumatic and non-traumatic conditions of the upper extremity and hand
- Demonstrate the understanding of fluid and electrolyte balance
- Acquire knowledge regarding preservation of amputation parts and prepare the same for reimplantation when indicated
- Prescribe the appropriate medication (antibiotic/anti inflammatory/analgesic) and counsel the patient on its effects and side effects as related hand disorders
- Counsel the patient and relatives on the nature of hand injury/disease and its possible outcome of treatment and take an informed consent
- Theoretical knowledge to diagnose and manage acute hand surgical problems of a patient including trauma in any situation.
- Have basic understanding of Trauma Systems, Trauma Scores, GC scale and mangled extremity severity scores.
- Acquire knowledge on hematological and coagulation disorders
- Have understanding of biostatistics and Research methodology
- Understand the Ethical and legal aspects of managing hand disorders
- Demonstrate the ability to order and interpret the appropriate investigation; radiological and laboratory for the management of hand disorders
- Demonstrate the ability to manage patient with bone and soft tissue infection of the hand and upper extremity.
- Demonstrate the ability to diagnose and manage soft tissue injuries of the upper extremity and hand

- Demonstrate the ability to diagnose, classify and manage patients with bony injuries of the upper extremity and hand
- Demonstrate the ability to provide regional and local anaesthesia to the hand and fingers
- Demonstrate the ability to identify the deformities resulting from Rheumatoid and other autoimmune disorders and carryout management
- Identify the functions of hand and disabilities caused by various disorders including neurovascular imbalance
- Demonstrate the ability to diagnose and manage congenital and developmental disorders of the hand
- Demonstrate skills in basic life support
- Demonstrate the ability to appropriately seek help from other specialties including Rehabilitation, orthotics, prosthetics, physiotherapy and occupational therapy
- Demonstrate the ability to diagnose and manage upper limb compartment syndrome
- Demonstrate the ability to diagnose and manage tumorous conditions of hand and upper extremity.

## **B. AFFECTIVE DOMAIN (Attitudes including Communication and Professionalism)**

### **The post graduate student:**

1. should be able to function as a part of a team, develop an attitude of cooperation with colleagues, and interact with the patient and the clinician or other colleagues to provide the best possible diagnosis or opinion.
2. should always adopt ethical principles and maintain proper etiquette in dealings with patients, relatives and other health personnel and to respect the rights of the patient including the right to information and second opinion.
3. should develop communication skills to word reports and professional opinion as well as to interact with patients, relatives, peers and paramedical staff, and for effective teaching.
4. should effectively communicate to patient and her relatives the nature of disease, the extent of disease, the treatment options available and expected outcome following management of the disease.

6. should be able to execute the planned treatment with the help of other colleagues in the speciality of Hand Surgery.
7. should maintain the highest degree of professionalism in executing treatment of the disease and communication to the patient and relatives.
8. should acquire compassion to the patient and relatives.

## **C. PSYCHOMOTOR DOMAIN**

The trainee in M.Ch. in Hand Surgery course is expected to acquire the following procedural and non-procedural skills in management of Hand Surgery and perform these independently/under supervision, as is relevant:

- Perform clinical examination of the hand, wrist, upper limb relevant to damage, disease and disability of the hand.
- Provide Primary Care for hand injuries – washing, dressing, splinting and preparation for surgeries.
- Demonstrate providing local and regional anaesthesia on a mannequin / real patient.
- Assemble the appropriate instruments/equipment for a given procedure.
- Perform the following:
  1. Venous access
  2. Splinting of hand and upper extremity fractures
  3. Application of plaster cast
  4. Fasciotomy
  5. Drainage of abscess in the finger and hand
  6. Debridement of crushed wounds and mangled extremity wounds
  7. Internal and external fixation / k wires / Plates
  8. Soft tissue coverage with skin grafts / flaps
  9. Open reduction and internal fixation of bone injuries of the small bones of hand, carpus and upper extremity
  10. Closed treatment of fractures and dislocation of upper extremity fractures and fixation by approximate internal fixation like interlocking nailing / k wires/Rush rods
  11. External skeletal stabilization of musculoskeletal injuries

12. Tendon transfer and myofascial flaps
13. Tendon repairs
14. Microvascular reconstruction of amputated parts
15. Arthrodesis of small joints of hand and wrist
16. Vascular repairs and reconstruction
17. Neural repairs and reconstruction
18. Deformity correction by soft tissue procedures
19. Deformity correction by bony procedures
20. Amputation of the upper extremity at various levels
21. Tumour excision and bone grafts / bone transport
22. Joint replacement of the wrist, elbow and shoulder
23. Excision arthroplasty of small joints of hand, elbow
24. Arthroscopic diagnosis and therapeutics of the shoulder, elbow wrist and small joints
25. Regional anesthesia

## ***TEACHING LEARNING STRATEGIES***

### ***General considerations***

- Attending OPD and learning examination of patient and patient management.
- Attending emergency calls from casualty on hand injuries and acute hand infections
- Attending operating room sessions.
- Attending and presenting cases to faculty.
- Care of inpatients of hand problems pre- and post-operative
- **Through** Journal club review with articles from hand Journals.
- Attending guest lectures by visiting local faculty.
- Participating and presenting paper in city / state / national/international level conferences.
- Participating in hospital audits and path and radiology meets.

## ***TEACHING AND LEARNING METHODS***

### **Methods of Training and Teaching**

The following learning methods are to be used for the teaching of the postgraduate students:

1. Journal club - 1 hour/ week
2. Seminar - 1 hour / week
3. Lecture / interactive discussion – one / 1 month
4. Case Resolution/Problem based learning - Long and short twice a week
5. Case conference
6. Radiology conference – once a month
7. Pathology conference – once a month
8. Clinical teaching – In emergency, ward rounds, ICU and operation theatre
9. Skills Labs
10. Cadaver Dissection
11. The Department should encourage e-learning activities.
12. Emergency situation: Casualty duty to be arranged by rotation among the M.Ch students with a faculty cover by rotation.
13. Bedside clinical training for patient care management. Clinical teaching: In OPD, ward rounds, emergency, ICU and the operation theatres.
14. PG students shall be required to participate in the teaching and training programme of Undergraduate students and interns.
15. Should have attended two conferences/CMEs/Workshops during tenure.
16. A postgraduate student in broad specialities/super specialities would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.
17. **LOG BOOK / E portfolio**  
Postgraduate students shall maintain a log book of the work carried out by them and the training programme undergone during the period of training including details of surgical operations assisted or done independently by M.Ch. candidates. Log book shall be checked and assessed periodically (once a week) by the faculty members imparting the training.
18. **Clinical postings: Recommended schedule for three years training**  
**Clinical Posting:**

Minimum of 2 years in Hand Surgery Department

**Peripheral posting** in the appropriate specialities to acquire the required competencies:

- 3 months in Orthopaedics Surgery / Plastic Surgery for the student who are from different basic qualifying speciality.
- 6 weeks in Anesthesia to learn the regional blocks & resuscitation)
- 6 weeks in musculo-skeletal imaging (MRI/CT/US)
- 3 months rotation maybe arranged optionally in international / renowned National Centre, if permitted by MCI. If this cannot be arranged in the parent Hand Surgery Unit.

**During the training programme, patient safety is of paramount importance; therefore, skills are to be learnt initially on the models/cadavers, later to be performed under supervision followed by performing independently; for this purpose, provision of skills laboratories in medical colleges is mandatory.**

## ***ASSESSMENT***

**Assessment should be comprehensive & objective. It should address the stated competencies of the course. The assessment needs to be spread over the duration of the course.**

**FORMATIVE ASSESSMENT, i.e., assessment during the training would include:**

**Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self directed learning and ability to practice in the system.**

### **General Principles**

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. Internal Assessment should be conducted in theory and clinical examination.

**Quarterly assessment during the MCh. training should be based on following educational activities:**

1. Journal based / recent advances learning
2. Patient based /Laboratory or Skill based learning
3. Self directed learning and teaching
4. Departmental and interdepartmental learning activity
5. External and Outreach Activities / CMEs

**The student to be assessed periodically as per categories listed in postgraduate student appraisal form (Annexure I).**

Additional sessions on basic sciences, biostatistics, research methodology, teaching methodology, medical ethics and legal issues related to Hand Surgery are suggested.

**FORMATIVE ASSESSMENT during the training includes:**

1. Personal attributes through 360 degree assessment
2. Clinical Skills performance through
  - OSCE
  - Ward rounds
  - Mini Cex (Mini clinical Examination)
  - DOPS (skill testing)
  - Case encounters
  - Standardized patient management.
3. Performance in Academic activities like
  - Journal Club
  - Thesis review
  - Seminar Presentation
  - Presentation in Conference and CME
4. Periodic-Theory and Clinical Examination once in 6 months
  - Publication and Presentations in Podium and Poster
  - Log book /e-portfolio maintenance

**Post Graduate Examination**



## **Summative assessment, at the end of the course,**

The summative examination would be carried out as per the Rules given in **POSTGRADUATE MEDICAL EDUCATION REGULATIONS, 2000.**

The summative assessment examination shall include two heads:

- A. Theory examination.
- B. Practical, Clinical examination and Viva-voce.

Theory examination and Practical/Clinical, Viva-voce shall be separate heads of passing.

Theory examination shall comprise of four papers. Passing percentage shall be cumulatively 50% with minimum of 40% marks in each theory paper.

Practical /Clinical examination consisting of at least one long case, three short cases and viva-voce. Passing percentage shall be 50%.

Passing shall be separate for each head and failing shall be common, meaning thereby that clearance at theory and failure at practical / clinical shall amount to failure at Summative examination and vice versa.

The M.Ch. examination shall be in two parts:

### **I. Theory: there shall be four theory papers:**

**Paper I:** Basic sciences: Surgical anatomy, physiology, microbiology; Principles of hand surgery and basic knowledge of Orthopedics, plastic surgery & general surgery

**Paper II:** Trauma of the hand and upper extremity including principles of internal fixation

**Paper III:** Neuromuscular, Tumour and deformities of hand and upper extremity, congenital anomalies, infections, Burns, Non-traumatic disorders of peripheral nerves, inflammatory conditions and Joint reconstructions (Arthrodesis, Arthroplasty and Arthroscopy including orthotic, prosthetic, rehabilitation of hand)

**Paper IV:** Recent advances in Hand Surgery

**II. Practical/clinical and Oral Examination:** Clinical skill assessment by at least one long case and 3 short cases.

**Viva Voce Examination including Pathology & Radiology, Instruments, Orthotics & bones as related to hand: 4 stations**

**RECOMMENDED READING**

**Books (latest edition)**

1. Green's Operative hand surgery – Two volumes Ed: Wolff S, Pedersen W , Publisher: Elsevier
2. Lister's The Hand – Ed: Graham Lister, Publisher: Churchill Livingstone
3. Acland's Hand book of Microsurgery
4. Eaton Text book of hand surgery ASSH online textbook
5. Text Book of hand and upper extremity – Two volumes (ASSH)
6. Hand Surgery - Ed: Richard A Berger – Two volumes Publisher- Lippincott Williams
7. Atlas of Hand surgery Thieme Classics Ed; Pechlaner ) Publisher: Thieme
8. Essentials of Hand Surgery – Ed: Kevin C Chung, Publisher: JP
9. Principles of hand surgery and Therapy- Ed: Trumble TE, Publisher: Elsevier
10. Living Text book of Hand Surgery – Ed: Thomas E Trumble, Publisher Living Hand books
11. Principles of hand surgery – Ed: Burk F.D Publisher : Churchill Livingston
12. Plastic and reconstructive surgery (PRS) Ed: Simeionov M, Publisher Springer.

**JOURNALS**

**Three international and two national Journals (all indexed)**

## Postgraduate Student Appraisal Form

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM.....TO.....

Sr. No.	PARTICULARS	Not Satisfactory			Satisfactory			More Than Satisfactory			Remarks
		1	2	3	4	5	6	7	8	9	
1.	Journal based / recent advances learning										
2.	Patient based /Laboratory or Skill based learning										
3.	Self directed learning and teaching										
4.	Departmental and interdepartmental learning activity										
5.	External and Outreach Activities / CMEs										
6.	Research work										
7.	Log Book Maintenance										
8.	Performance in formative assessment methods										

Publications

Yes/ No

Remarks\* \_\_\_\_\_

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**\*REMARKS:** Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested. Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE

SIGNATURE OF CONSULTANT

SIGNATURE OF HOD